

WHAT WE CLAIM IS:

1. A device for absorbing energy from an automobile vehicle steering column, said column comprising a steering shaft rotatably mounted about a steering axis in a body-tube carrying a steering wheel, said body-tube being connected to a support assembly fixed to a structure of said vehicle, said energy absorbing device including:

- a bearing member which is connected to said support assembly by a lateral connection system relative to a vertical plane containing said steering axis;

- an axial guidance system acting along said steering axis and comprising:

- . a lateral sliding member that is disposed laterally relative to said vertical plane (8) containing said steering axis and is attached to and arranged on said body-tube, and

- . balls that are disposed axially between the lateral sliding member of said body-tube and said bearing member,

- . said bearing member being disposed laterally relative to said vertical plane containing said steering axis and being disposed between said body-tube and a lateral upright of said support assembly, said lateral upright being substantially parallel to said vertical plane containing said steering axis;

- . in normal operation there is no axial sliding

movement between said body-tube and said bearing member; and

. in the event of an impact, there is axial sliding between said body-tube and said bearing member retained in position relative to said support assembly by said connecting system.

2. The energy absorbing device claimed in claim 1, wherein, for said axial guidance system:

- said lateral sliding member is substantially parallel to said vertical plane containing said steering axis and has a central portion that has two ends extended vertically by two internal raceways respectively, each of said two internal raceways having a direction substantially parallel to said steering axis, said two internal raceways being situated one on each side of a clamping plane passing through said steering axis and perpendicular to said vertical plane containing said steering axis;

- said bearing member has a substantially vertical central portion that is pressed against said lateral upright of said support assembly and that has two ends extended vertically by two external raceways respectively, each of said two external raceways having a direction substantially parallel to said steering axis, said two external raceways being situated one on each side of said clamping plane containing said steering axis; and

- said balls are arranged in two sets that are respectively disposed between the respective

internal raceway and the respective external raceway, each of said two ball sets having balls which are retained relative to each other by a respective cage.

3. The energy absorbing device claimed in claim 2, wherein each of said two internal raceways and said two external raceways comprises two planes and inclined relative to each other and parallel to said steering axis, the rear end at the steering wheel end of each of said two external raceways having a stepped portion which folds against an end of said cage of the respective balls.

4. The energy absorbing device claimed in claim 2, including an energy absorbing member that is disposed between said bearing member and said body-tube, said body-tube, in the event of an impact, sliding in said bearing member which remains fixed, said energy absorbing member being fixed relative to said bearing member and relative to said body-tube in normal operation, said absorption of energy being independent of the position to which said body-tube is adjusted.

5. The energy absorbing device claimed in claim 4, wherein said energy absorbing member is a metal band whose section is adjusted as a function of the energy to be absorbed and which is mounted parallel to said central portion of said bearing member, whose front end is fastened to said central

portion and whose rear end at the steering wheel end is engaged in, and in the event of an impact deformed against, a front end of said body-tube.

6. The energy absorbing device claimed in claim 4, wherein said energy absorbing member is a metal band whose section is adjusted as a function of the energy to be absorbed and which is mounted parallel to said central portion of said bearing member, whose front end is fastened to said central portion, and whose rear end at the steering wheel end is connected to said body-tube and is deformed relative to said body-tube.

7. The energy absorbing device claimed in claim 2, wherein:

- said bearing member has two portions inclined relative to each other and substantially parallel to said steering axis, each inclined portion being disposed between the respective external raceway and said central portion;

- said central portion includes a hole through which passes a clamping rod of said connecting system;

- said lateral upright comprises two inclined retaining portions which are disposed one on each side of said clamping plane and which are arranged so that the corresponding inclined portion of said bearing member is pressed against said inclined retaining portion when said connecting system is immobilized; and

- said lateral upright has a hole in it through which said clamping rod passes.

8. The energy absorbing device claimed in claim 2, wherein said steering column is adjustable in height and/or in depth.

9. The energy absorbing device claimed in claim 8, wherein said connecting system between said bearing member and said support assembly is a clamping system along a clamping axis which is substantially perpendicular to said vertical plane containing said steering axis.

10. The energy absorbing device claimed in claim 9, wherein said clamping system includes a clamping rod whose axis is said clamping axis and clamping members mounted on said clamping rod, said clamping rod passing through said bearing member, said lateral upright and said clamping members, said clamping rod having a head that is pressed against an internal face of said central portion of said bearing member and a threaded external end on which a clamping nut is mounted.

11. The energy absorbing device claimed in claim 10, wherein:

- said bearing member has two portions inclined relative to each other and substantially parallel to said steering axis, each inclined portion being disposed between the respective external raceway and

said central portion;

- said central portion includes an oblong hole through which passes said clamping rod which is parallel to said steering axis;

- a retaining member is disposed between said bearing member and the internal face of said lateral upright, said retaining member having two inclined retaining portions which are disposed one on each side of said clamping plane and are arranged so that the corresponding inclined portion of said bearing member is pressed against said inclined retaining portion when said clamping system is locked;

- said retaining member has a hole in it through which said clamping rod passes; and

- said lateral upright has an oblong hole in it through which said clamping rod passes and which is perpendicular to said clamping plane.

12. The energy absorbing device claimed in claim 11, wherein said clamping rod carries a sliding member coated with a plastics material having a low coefficient of friction in said oblong hole in said bearing member.